

**REMARKS**

The preceding claim amendments and the following remarks are submitted as a full and complete response to the Office Action issued on March 12, 2009.

Applicants note the rejoinder of claims 5-9, which were previously withdrawn from examination, to the present application and withdrawal of the previous rejection of claims 1-3 under 35 U.S.C. §103(a). Claims 1, 3 and 7-9 have been amended. The details of the claimed amendments are explained below. No new matter has been added. Claim 12 has been cancelled without prejudice or disclaimer. Accordingly, upon entry of the claim amendments, claims 1-3 and 5-11 are pending.

Reconsideration of all outstanding rejections is respectfully requested in view of the foregoing amendment and following remarks.

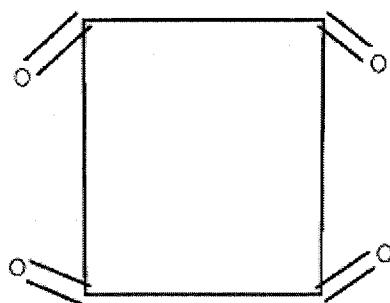
**Claim Rejections under 35 USC §112, second paragraph**

The Patent Office has rejected claims 1-3 and 5-12 under 35 USC §112, second paragraph, as allegedly indefinite for various reasons. Without acquiescing to the propriety of the Patent Office's position in these rejections, Applicants have revised claims 1, 3 and 7-9 as explained below to address concerns raised in these rejections.

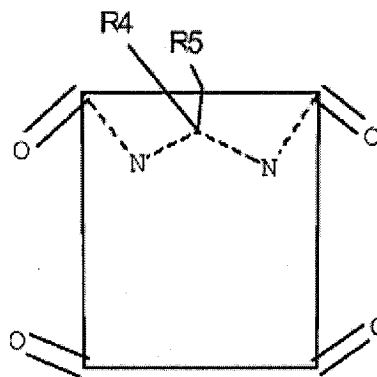
The Patent Office has objected to the recitation of "cucurbuturil or its derivative of formula 2" in claim 1 because the structure of claim 2 is missing in claim 1. The Patent Office has also proposed to change this recitation to "cucurbuturil or its derivative represented by Formula 2." The Patent Office has further rejected claim 1, alleging that claim 1 is not clear about the attachment point of the compound of formula 1 to the solid substrate. Applicants have amended claim 1 to (1) incorporate the subject matter of claim 12, which contains formula 2, (2) replace the

objected recitation by the proposed recitation, and (3) revise the definition of  $Y_2$  to read " $Y_2$  is a functional group capable of binding to the solid substrate." Applicants respectfully submit that the above amendments to claim 1 render moot the rejection of claim 1 for indefiniteness.

The Patent Office has rejected claim 3, alleging that the solid substrate represented by Formulae 5 through 13 as claimed do not show the compound attached to any substrate. The Patent Office further asserts that it is not clear whether the structure I appearing in claim 3 and the structure II appearing in claim 1 (each set forth below) represent the same or different compounds because there are additional groups (N,  $R_4$  and  $R_5$ ) attached to the structure II in claim 1.



Structure I



Structure II

Applicants note that claim 3 has been revised to recite "The solid substrate of claim 1, wherein the compound of Formula 1 is selected from," so that the substrate need not to be shown in Formulae 5 through 13. With respect to the alleged difference between Structures I and II, Applicants have revised Structure II that appears in Formulae 5 through 13 to show "N" groups. The specification verifies that the compounds of Formulae 5 through 13 are examples of the compounds of Formula 1. See page 11, para [0036]. Thus, it is clear that as a subset of Formula 1, Formulae 5 through 13 necessarily contain N groups as in Formula 1. Nonetheless,

in an effort to attend to the Patent Office's concern, Formulae 5 and 13 have been revised to show N groups as in Formula 1. With respect to the R<sub>4</sub> and R<sub>5</sub> groups, Applicants respectfully submit that the compounds of Formulae 5 through 13 contain hydrogen as R<sub>4</sub> and R<sub>5</sub> groups and thus, the R<sub>4</sub> and R<sub>5</sub> groups do not need to be shown in Structure II of Formulae 5 through 13.

The Patent Office has rejected claims 7 and 8, alleging that the solid substrate of claim 1 is not described as attached to any gene or protein and thus the relationship of the gene or protein with respect to the solid substrate of the claimed gene or protein chip is vague and indefinite. As for claim 9, the Patent Office further alleges that it is unclear what biomaterial assay Applicants intend to encompass by the claimed sensor. Applicants respectfully disagree.

As described in the specification, the basic structure or composition of a gene or protein chip is well known in the relevant art and thus the relationship of the gene or protein with respect to the solid substrate is apparent to one skilled in the art. See page 1-6 of the specification. That is, a gene chip contains a gene *i.e.*, any types of DNA capable of selectively interacting with a DNA to be assayed and a protein chip contains a protein for example, antibody, that is capable of selectively interacting with a protein to be assayed. In addition, Formula 1 is clear to indicate that Y<sub>1</sub> group is for a linkage with a biomaterial comprising a gene or a protein. Therefore, one skilled in the art would have readily understood the subject matter claimed in claims 7 and 8 without further recitation of any gene or protein. Nonetheless, Applicants have revised claims 7 and 8 to make it clear that the claimed gene or protein chip contains both the solid substrate of claim 1 and a DNA or a protein capable of interacting with a DNA or a protein to be assayed. As for the rejection of claim 9, Applicants respectfully submit that claim 9 has been revised to recite the biomaterial

as a DNA or a protein, which renders the rejection of claim 9 moot.

Accordingly, in view of the claim amendments and arguments, reconsideration and withdrawal of all of the indefiniteness rejections is requested.

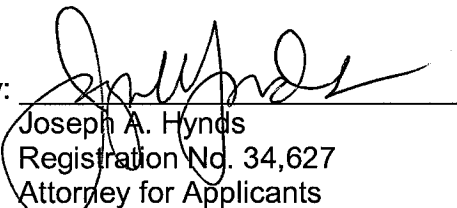
**Claim Rejections under 35 USC §112, first paragraph**

The Patent Office has rejected claims 1-3 and 5-12 under 35 USC §112, first paragraph, as failing to comply with the written description requirement. The Patent Office alleges that the original disclosure does not support any orientation, other than a vertical orientation, of the compound of Formula 3 with respect to cucurbituril or its derivative of Formula 2 to form the compound of Formula 1. While not acquiescing to the propriety in this rejection, Applicants have revised claim 1 to incorporate the subject matter of claim 12 which recites the vertical orientation, into claim 1.

Applicants respectfully submit that this amendment renders the written description rejection moot and thus withdrawal of this rejection is warranted.

In light of the foregoing, Applicants submit that all outstanding rejections have been overcome, and the instant application is in condition for allowance. Thus, Applicants respectfully request early allowance of the instant application. The Commissioner is hereby authorized to charge any fees or credit any overpayment to Deposit Account No. 02-2135.

Respectfully submitted,

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